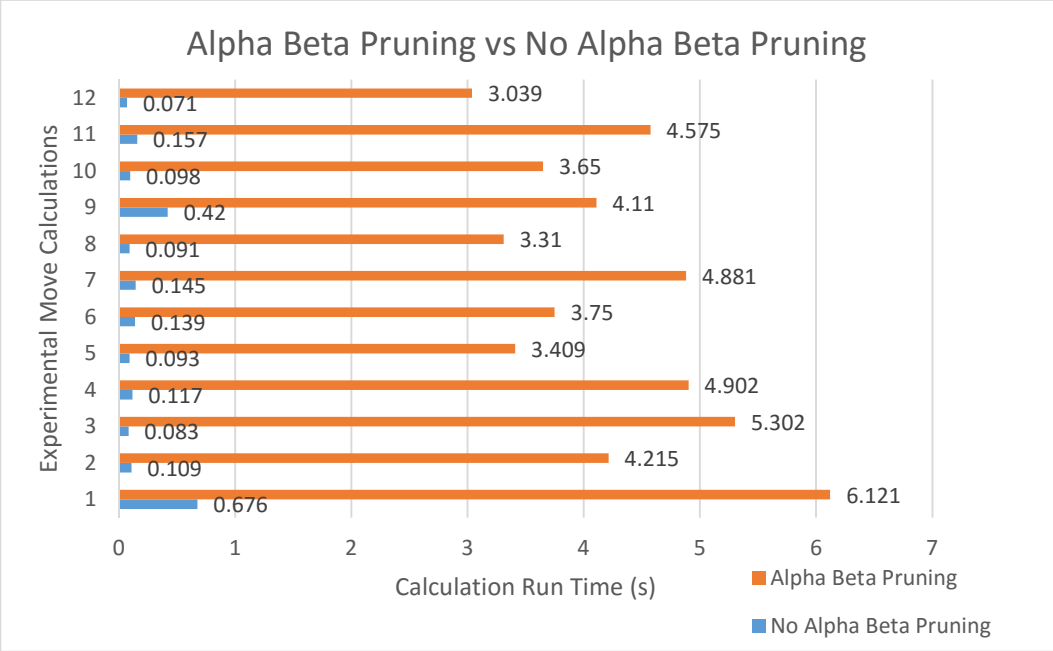
Alpha Beta Pruning Experiment

We used Alpha Beta pruning in our MiniMax function, attempting to reduce the run time of our calculations. In order to ensure that the calculations for Alpha Beta Pruning would reduce the time taken by the computer we performed an experiment running a hypothetical game in java with and without Alpha Beta Pruning, and recorded the amount of time needed by the computer to determine the move for each move with a search depth of 7. The results of this experiment had the calculations with Alpha Beta Pruning taking on average nearly a tenth as much time as without Alpha Beta Pruning.

Move Number	No Alpha Beta Pruning Time (s)	Alpha Beta Pruning Time (s)	Time Saved (s)
1	0.676	6.121	0.1104
2	0.109	4.215	0.0259
3	0.083	5.302	0.0157
4	0.117	4.902	0.0239
5	0.093	3.409	0.0273
6	0.139	3.75	0.0371
7	0.145	4.881	0.0297
8	0.091	3.31	0.0275
9	0.42	4.11	0.1022
10	0.098	3.65	0.0268
11	0.157	4.575	0.0343
12	0.071	3.039	0.0234



This data recorded in our experiment shows a resounding success for alpha beta pruning in terms of efficiency. Because of this experiment we chose to implement Alpha Beta Pruning in our final Connect N code.